In the Claims

Amend claims 1, 16, 29 and 30, cancel claims 2-15 and 17-28 and add new claims 31-34 as follows:

1. (currently amended) A method of performing model-based optical lithography corrections comprising:

providing a cell array layout of a desired design data hierarchy having a plurality of finite geometrical shapes;

partitioning said cell array layout into a plurality of cells;

generating an interaction map based on a density map corresponding to interactions between said plurality of finite geometrical shapes and said plurality of cells, including:

computing said density map comprising a plurality of densities, one for each of said plurality of cells, wherein said plurality of densities correspond to said interactions for each of said plurality of cells;

providing a plurality of convolved densities by convolving said plurality of densities with an inverse power law kernel;

generating said interaction map using said plurality of convolved densities;

truncating said interaction map to generate a map of truncated cells;

grouping substantially identical occurrences of selected ones of said truncated cells into a single bucket selected from a plurality of distinct buckets; and

enforcing said desired design data hierarchy using said plurality of distinct buckets to correct for optical lithography.

2-15. (cancelled)

16. (currently amended) A method of performing model-based optical lithography corrections comprising:

providing a cell array layout representative of a desired design data hierarchy having a plurality of polygons thereon;

partitioning said cell array layout into a plurality of cells;

providing a density map corresponding to interactions between said polygons and said plurality of cells, said density map comprising a plurality of densities, one for each of said plurality of cells;

convolving said plurality of densities with an inverse power law kernel;

generating an interaction map based on said density map;

truncating said interaction map to generate a map of truncated cells;

segregating substantially identical groupings of said truncated cells respectively into differing ones of a plurality of buckets, whereby each of said plurality of buckets comprises a single set of said identical groupings of said truncated cells,

generating a hierarchal arrangement using said plurality of buckets; and

enforcing said desired design data hierarchy using said hierarchal arrangement to correct for optical lithography.

17-28. (cancelled)

29. (currently amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for performing model-based optical proximity correction, said method steps comprising:

providing a cell array layout of a desired design data hierarchy having a plurality of finite geometrical shapes;

partitioning said cell array layout into a plurality of cells;

generating an interaction map based on a density map corresponding to interactions between said plurality of finite geometrical shapes and said plurality of cells, including;

computing said density map comprising a plurality of densities, one for each of said plurality of cells, wherein said plurality of densities correspond to said interactions for each of said plurality of cells;

providing a plurality of convolved densities by convolving said plurality of densities with an inverse power law kernel;

generating said interaction map using said plurality of convolved densities;

truncating said interaction map to generate a map of truncated cells;

grouping substantially identical occurrences of selected ones of said truncated cells into a single bucket selected from a plurality of distinct buckets; and

enforcing said desired design data hierarchy using said plurality of distinct buckets to correct for optical lithography.

30. (currently amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method

steps for performing model-based optical proximity correction, said method steps comprising:

providing a cell array layout representative of a desired design data hierarchy having a plurality of polygons thereon;

partitioning said cell array layout into a plurality of cells;

providing a density map corresponding to interactions between said polygons and said plurality of cells, said density map comprising a plurality of densities, one for each of said plurality of cells;

convolving said plurality of densities with an inverse power law kernel;

generating an interaction map based on said density map;

truncating said interaction map to generate a map of truncated cells;

segregating substantially identical groupings of said truncated cells respectively into differing ones of a plurality of buckets, whereby each of said plurality of buckets comprises a single set of said identical groupings of said truncated cells,

generating a hierarchal arrangement using said plurality of buckets; and

enforcing said desired design data hierarchy using said hierarchal arrangement to correct for optical lithography.

31. (new) A method of performing model-based optical lithography corrections comprising:

providing a cell array layout of a desired design data hierarchy having a plurality of finite geometrical shapes;

partitioning said cell array layout into a plurality of cells;

generating an interaction map based on a density map corresponding to interactions between said plurality of finite geometrical shapes and said plurality of cells;

truncating said interaction map to generate a map of truncated cells, including assigning a reference designator selected from a group of reference designators to each of said truncated cells wherein identical reference designators denote substantially identical truncated cells;

grouping substantially identical occurrences of selected ones of said truncated cells into a single bucket selected from a plurality of distinct buckets; and

enforcing said desired design data hierarchy using said plurality of distinct buckets to correct for optical lithography.

32. (new) A method of performing model-based optical lithography corrections comprising:

providing a cell array layout representative of a desired design data hierarchy having a plurality of polygons thereon;

partitioning said cell array layout into a plurality of cells;

providing a density map corresponding to interactions between said polygons and said plurality of cells;

generating an interaction map based on said density map;

truncating said interaction map to generate a map of truncated cells, including assigning a reference designator selected from a group of reference designators to each of said truncated cells wherein identical reference designators denote substantially identical truncated cells;

segregating substantially identical groupings of said truncated cells respectively into differing ones of a plurality of buckets, whereby each of said plurality of buckets comprises a single set of said identical groupings of said truncated cells,

generating a hierarchal arrangement using said plurality of buckets; and

enforcing said desired design data hierarchy using said hierarchal arrangement to correct for optical lithography.

33. (new) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for performing model-based optical proximity correction, said method steps comprising:

providing a cell array layout of a desired design data hierarchy having a plurality of finite geometrical shapes;

partitioning said cell array layout into a plurality of cells;

generating an interaction map based on a density map corresponding to interactions between said plurality of finite geometrical shapes and said plurality of cells;

truncating said interaction map to generate a map of truncated cells, including assigning a reference designator selected from a group of reference designators to each of said truncated cells wherein identical reference designators denote substantially identical truncated cells;

grouping substantially identical occurrences of selected ones of said truncated cells into a single bucket selected from a plurality of distinct buckets; and

enforcing said desired design data hierarchy using said plurality of distinct buckets to correct for optical lithography.

34. (new) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for performing model-based optical proximity correction, said method steps comprising:

providing a cell array layout representative of a desired design data hierarchy having a plurality of polygons thereon;

partitioning said cell array layout into a plurality of cells;

providing a density map corresponding to interactions between said polygons and said plurality of cells;

generating an interaction map based on said density map;

truncating said interaction map to generate a map of truncated cells, including assigning a reference designator selected from a group of reference designators to each of said truncated cells wherein identical reference designators denote substantially identical truncated cells;

segregating substantially identical groupings of said truncated cells respectively into differing ones of a plurality of buckets, whereby each of said plurality of buckets comprises a single set of said identical groupings of said truncated cells,

generating a hierarchal arrangement using said plurality of buckets; and

enforcing said desired design data hierarchy using said hierarchal arrangement to correct for optical lithography.